

# FUKUSHIMA HIGH SCHOOL ACADEMY 2024

Supplementary reader: report on activities from August 1 to September 16, 2024 .....

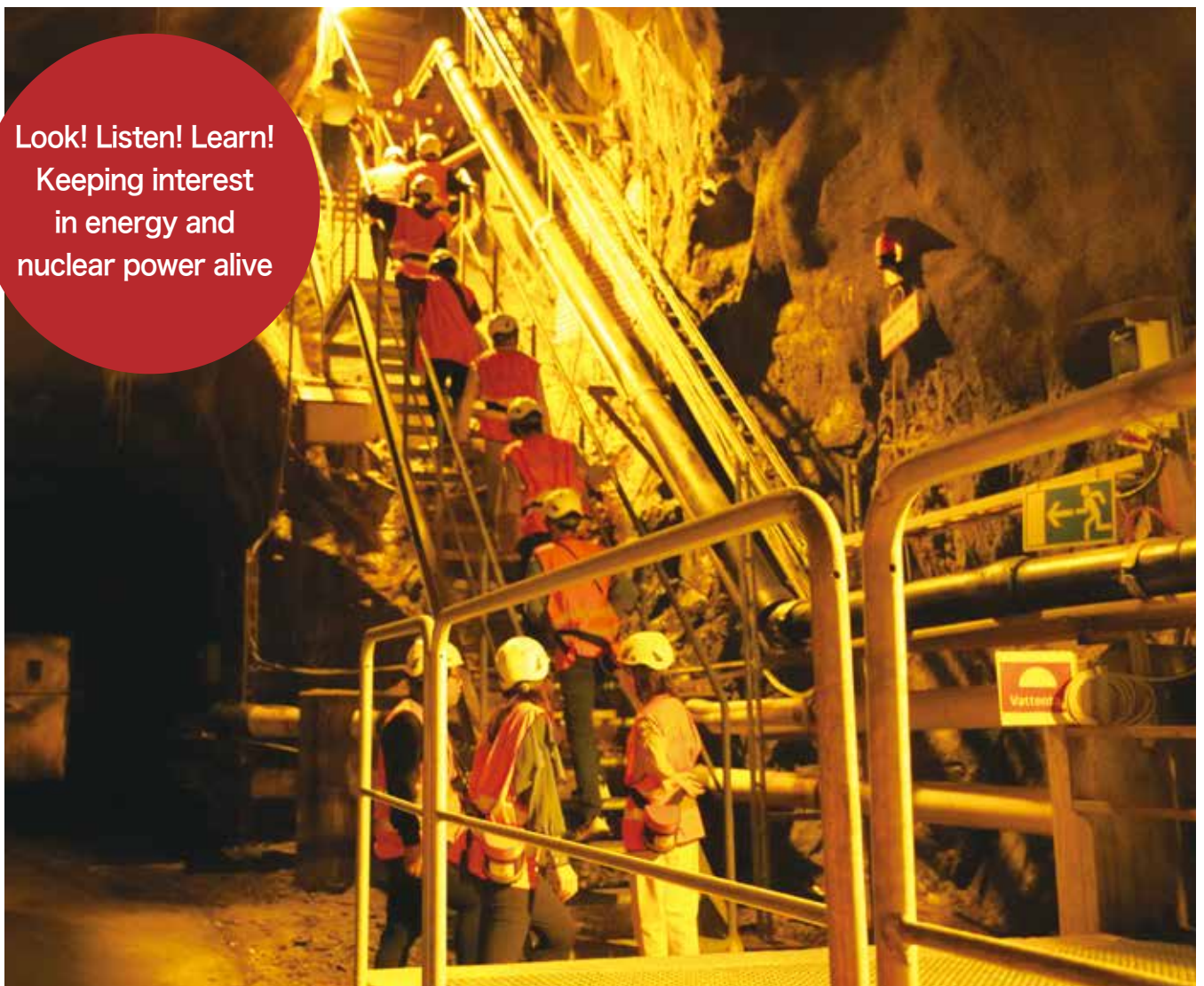


High school students investigated the issues in Sweden, Aomori and Fukushima!



## Addressing the disposal of High-Level Radioactive Waste

Look! Listen! Learn!  
Keeping interest  
in energy and  
nuclear power alive



# Fukushima High School Academy 2024

## Purpose of the Training Program

The purpose of the training program is to increase participants' sense of ownership by making social issues "about oneself," and to develop empathy, cooperation skills, self-expression, and respect for diverse opinions. Through this, we aim to disseminate information on the issues at hand, and the importance of revitalizing Fukushima, both nationally and internationally.

## Three areas of the Training Program

- ① Investigate the current status and future perspectives in two countries, Japan and Sweden, in terms of technologies and policies for the final disposal of high-level radioactive waste.
- ② Inform the people of Sweden about the current situation in Japan, including the prefecture of Fukushima.
- ③ Bring back information learned in Sweden, think about the final disposal site in Japan and distribute this information all over Japan and across the world.



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## Participants List

### ● High School Students

-  Ikue Takano,  
Soma High School, Fukushima Prefecture
-  Kotaro Abe,  
Haramachi High School, Fukushima Prefecture
-  Miyu Sato,  
Haramachi High School, Fukushima Prefecture
-  Toshiki Okawa,  
Iwaki High School, Fukushima Prefecture
-  Yuki Shiraishi,  
Iwaki Sakuragaoka High School, Fukushima Prefecture
-  Nanami Miyazato,  
Iwaki Sakuragaoka High School, Fukushima Prefecture
-  Riho Moue,  
Iwaki Sakuragaoka High School, Fukushima Prefecture

### ● Facilitators

-  Miyu Motoyama,  
Suttso High School, Hokkaido
-  Hatsune Usuki,  
Suttso High School, Hokkaido
-  Akari Nakamura,  
Tsuruga High School, Fukui Prefecture
-  Yuma Nakano,  
Tsuruga High School, Fukui Prefecture
-  Kino Nishigata,  
Tokyo High School Institute of Science
-  Shun Yasuda,  
Tokyo High School Institute of Science
-  Taiga Okuyama,  
Fukushima University
-  Eri Nakano,  
Musashino University
-  Shunsuke Takeda,  
Meiji University
-  Takumi Sakamoto,  
Hosei University



# Investigating the Future of Nuclear Waste Disposal in Sweden, Aomori

# Nuclear Waste Disposal and Fukushima!



## Visits to Aomori and Fukushima prefectures

## Visit to Sweden

**Thursday, August 1**  
Rokkasho Village, Aomori Prefecture

- Assembly in Hachinohe the previous night from Fukushima, Hokkaido, Fukui, and Tokyo
- Tour of JNFL PR Center
- Tour of spent fuel storage pool
- Tour of High-Level Radioactive Waste Storage and Management Center
- Tour of Low-Level Radioactive Waste Burial Center
- Lecture by Naohiro Masuda, president of JNFL (former superintendent of TEPCO's Fukushima Daiichi Nuclear Power Station)

**Friday, August 2**  
Aomori Nuclear Fuel Technology Center, Aomori Prefecture

- Classroom lectures begin
- Lecture by Nuclear Waste Management Organization of Japan (NUMO)
- Lecture by Agency for Natural Resources and Energy (METI)
- Departure from Aomori
- Board shinkansen and disembark at Sendai Station
- Arrival in Hirono Town via chartered bus

**Saturday, August 3**  
Site visit to TEPCO Fukushima Daiichi Nuclear Power Station

- Visit to TEPCO Decommissioning Archive Center
- Lecture by Akira Ono, Chief Decommissioning Officer (CDO) at TEPCO
- Tour of Fukushima Daiichi Nuclear Power Station: Marine Organisms Rearing Test Facility, Dry Casks, Blue & Green Decks
- Overnight in Hirono Town: Presentation preparations during the 4th and morning of the 5th, travel to Haneda Airport via chartered bus in the afternoon, and departure for Sweden in the evening

**Tuesday, August 6**  
Oskarshamn

- Presentation preparations at hotel in Oskarshamn

**Wednesday, August 7**  
Oskarshamn

- Site visit to Äspö Hard Rock Laboratory: Lecture by SKB, tunnel visit, lunch with locals
- Dinner

## Visit to Sweden

**Thursday, August 8**  
Travel from Oskarshamn to Uppsala

- Interaction with high school students: Presentations by Groups A and B
- Presentation preparations at hotel in Uppsala

**Friday, August 9**  
Travel from Uppsala to Forsmark

- Visit to the planned construction site for the final disposal facility in Forsmark
- Briefing by Hannah, SKB's public relations manager
- Interaction with students from Vattenfall High School: Presentations by Groups B and C
- Overnight in Uppsala

**Saturday, August 10**  
Travel from Uppsala to Stockholm

- Interaction with students at Uppsala University: Presentations by Groups A, B, and C
- Overnight in Stockholm

**Sunday, August 11**  
Stockholm

- City walk
- Dinner
- Return from Arlanda Airport on August 12, with arrival at Haneda Airport during the afternoon of August 13

Part 1

Overview Group Presentation

Selecting a repository for high-level radioactive waste

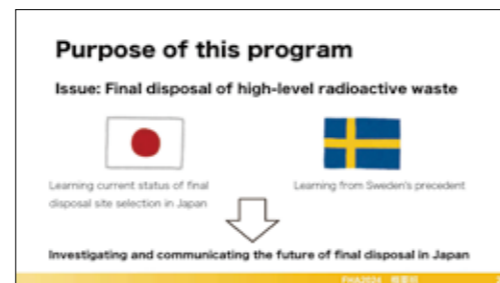


- High School Student Presenters
- .....
- Toshiki Okawa, Iwaki High School
- .....
- Hatsune Usuki, Suttsu High School
- .....
- Facilitator: Eri Nakano, Musashino University

"Hej alla. Hur mår du?"  
That's Swedish for "Hello everyone. How are you?" We went to Sweden as part of the Fukushima High School Academy 2024 program. Here is an overview of the training program.

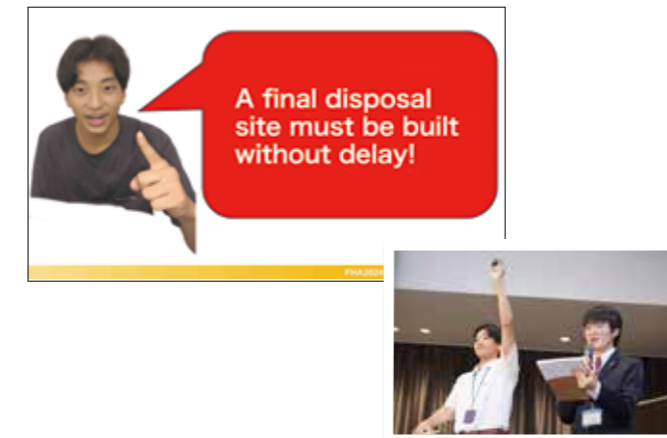
High-level radioactive waste continues to accumulate in Japan. Although the government has adopted a disposal policy, a site for a repository has not yet been selected. Our goal was to break through this situation by learning from Sweden, where the disposal site has already been decided, and think about how we can apply this knowledge to Japan from our perspective as high school students.

First, let us tell you about our training in Japan. On August 1, we visited the JNFL (Japan Nuclear Fuel Limited) facility in Aomori



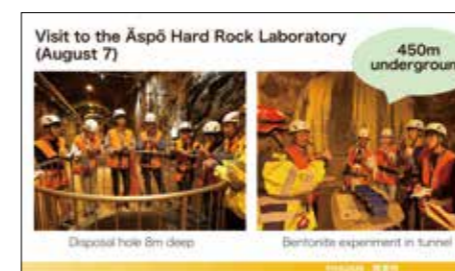
Prefecture, then on August 3, we went to TEPCO's (Tokyo Electric Power Company) Fukushima Daiichi Nuclear Power Station. At the Nuclear Fuel PR Center in Rokkasho Village, we saw a full-scale model of the nuclear fuel cycle and gained a deeper understanding of its mechanism. At the High-Level Radioactive Waste Storage and Management Center, we saw for ourselves the area where high-level radioactive waste is stored directly below.

At the Fukushima Daiichi Nuclear Power Station, we saw the spent fuel pool inside Unit 5, which was almost completely full. We don't think this is an issue limited to Fukushima Daiichi.



Through this visit, we felt a sense of urgency to select a repository as soon as possible and reaffirmed the need to solve this problem.

Next, we went to Sweden. On August 7, we visited the Äspö Hard Rock Laboratory, followed the next day by an exchange at Oskarshamn High School. On August 9, we visited the site where the Forsmark repository will be built and interacted with people from Vattenfall High School. On August 10, we spoke with students from Uppsala University.



We'd like to tell you about the Äspö Hard Rock Laboratory, the proposed repository in Forsmark, and Uppsala University, which made a particularly strong impression on us. At the Äspö Hard Rock Laboratory we went down to about 450 meters below ground. It was exciting to see the canister burial machine and the deep disposal borehole. Panels with explanations and experiments were placed all over to help visitors learn more about final disposal.

During the tour of the proposed site for the repository in Forsmark, we were taken to the actual site by Hannah, the public relations manager of SKB, the Swedish Nuclear Fuel and Waste Management Company. This is the company responsible for implementing the repository. Although the land was still undeveloped because construction had not yet begun, we realized that the project was more definitely underway than in Japan. At Uppsala University, the oldest university in Scandinavia, we gave a presentation in English to the university students. We also interacted with a local high school and learned about cultural differences.

Finally, our impressions of the High School Academy program. During the tours of JNFL and the Fukushima Daiichi Nuclear Power Station, we felt the urgency of moving forward with the selection of a permanent disposal site as soon as possible. In Sweden, they have progressed to the selection of the actual site, but we discovered that the selection process had been arduous because gradually gaining the understanding and trust of local residents over a long period of time was a difficult task. We were also impressed by SKB's interaction and exchange activities.

We spent two weeks in Japan and abroad learning about the current status and initiatives surrounding final disposal. We would like to share with you three things we consider important in order to move along the disposal process in Japan.

The first is "the importance of learning about energy and nuclear power in compulsory education", the second is "lowering the barriers to understanding geological disposal", and the third is "expanding the circle of exchange from local communities".

Now, please listen to the presentations from each group.



Part 1

Education Group Presentation

( Importance of learning about energy and nuclear power in compulsory education )



- High School Student Presenters -
- Yuma Nakano, Tsuruga High School
- Kino Nishigata, Tokyo High School Institute of Science
- Miyu Sato, Haramachi High School
- Facilitator: Shunsuke Takeda, Meiji University

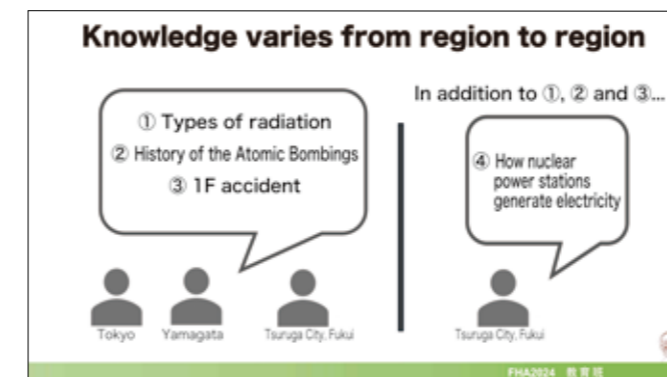
Japan will most likely continue to use nuclear power generation for energy mix reasons and to reduce CO<sub>2</sub> emissions. However, the spent fuel pools are nearing full capacity, and if they become full, operating nuclear power stations will have to be shut down. We learned this fact for the first time during this training program.

We had a surprise when we met with students from Oskarshamn High School in Sweden. They took for granted the knowledge about nuclear energy that we had learned that day, and they told us that SKB representatives give classes at their school, and they visit SKB on school trips or privately. We felt that having a place to learn about nuclear energy and an environment where children and adults can learn together is a factor in spreading scientifically-based knowledge.



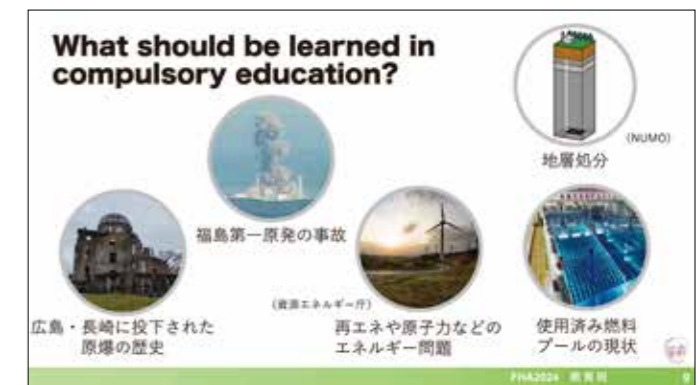
But what about Japan? We use electricity every day, and the world has become a place where we cannot live without it. In addition to the low level of knowledge about nuclear power generation, many people seem to take for granted their daily life in which they can use sufficient electricity. In fact, we did not have the opportunity to think about energy until we participated in the training program. However, as we thought about energy through the program, we realized that it would be difficult to change the current situation in Japan if we were the only ones learning about it, and that it is an issue that all citizens need to be aware of.

Our generation will be responsible for energy issues and geological disposal in particular. However, even though we have received compulsory education, what people actually learn during this education varies, and we felt that there were differences in knowledge depending on the region. All three of us had learned about types of radiation, the history of the atomic bombings of Hiroshima and Nagasaki, and the Fukushima Daiichi Nuclear Power Station Accident when we were in elementary and junior high school. And one of us who lives in Tsuruga City, Fukui Prefecture had learned how nuclear power stations work.



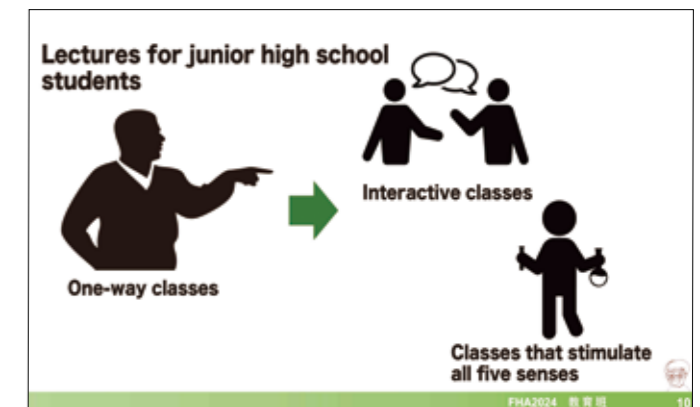
Because the historical background of each region changes the way people think and the local situation, we believe it is necessary to respect and learn about regional characteristics. We also believe that there are more things that need to be learned in a unified manner throughout the country, and that the current compulsory education is inadequate.

In addition to energy issues such as nuclear power generation, the current status of geological disposal and spent fuel should be taught as part of a uniform curriculum to be studied in compulsory education.



In junior high school classes, outside lecturers should provide up-to-date information and in-depth knowledge not found in textbooks. The content of lectures should be memorable so that students are encouraged to think about the issues, and experiments should be conducted that appeal to their five senses.

In Japan, there are regional differences in the level of knowledge about energy and nuclear power generation. We believe that by introducing uniform education throughout the country and continuing the educational work that has been conducted in each region, we will be able to work toward solving these problems in the future. Therefore, we'd like to see more environments created where students can learn the correct knowledge through compulsory education.



Part 1

Interest and Awareness Group Presentation

Facilitating understanding and driving discussion

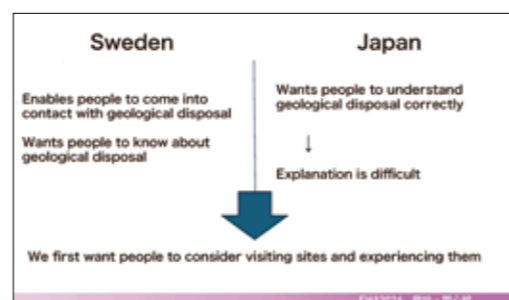


- High School Student Presenters
- Kotaro Abe, Haramachi High School
- Riho Moue, Iwaki Sakuragaoka High School
- Akari Nakamura, Tsuruga High School
- Facilitator: Takumi Sakamoto, Hosei University

We visited the reprocessing plant in Rokkasho Village, Aomori Prefecture, and learned that the fuel pool was almost full. When we heard that nuclear power stations may not be able to continue operating if the current situation continues, we felt a sense of crisis about the future and realized that people should know about geological disposal.

The results of a survey conducted by the Nuclear Waste Management Organization of Japan (NUMO) show that the issue of geological disposal is not well known, especially among the younger generation. How can we overcome this situation?

In terms of the difference between the Swedish approach and NUMO's efforts to promote geological disposal in Japan, we believe that in Sweden, they want people initially to be aware of geological



disposal as a concept. In Japan, on the other hand, people expect detailed and precise information, but the details of geological disposal can be difficult to understand.

Given the current situation in which many people in Japan do not know about geological disposal, it is important first of all to reassure people that the barrier to understanding the subject is not insurmountable. We would therefore like to lower this barrier, and encourage people actually to visit sites and experience them in a tangible way.

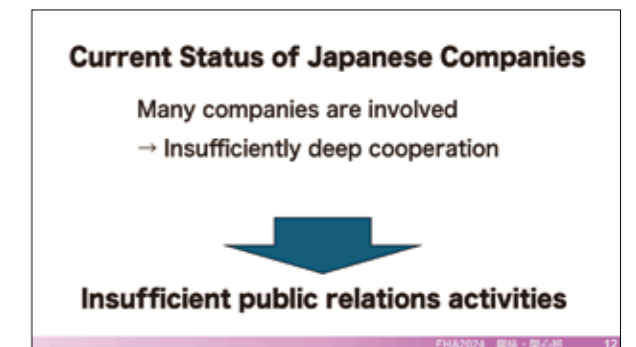


So, we have a few proposals on this. The first is to show the spent fuel and vitrified waste transport vehicles and spent fuel carriers to the public. Even people without an interest in geological disposal would be able to participate. The second is a puzzle/escape game using the Horonobe Underground Research Center. By playing the game, visitors can come into contact with the idea of geological disposal. The third is the construction of "Gumo Parks" throughout the country, with NUMO's mascot character "Gumo" incorporated within them. This would attract young people to visit the parks as places that can be easily Instagrammed.

Why have there been no initiatives in Japan that can be enjoyed even by those who don't have a particular interest in the subject? In Sweden, SKB does everything from research to public relations, and the direction of their staff's work is consistent.

In addition, when explaining a project, they made sure to include familiar topics and use less jargon, making it more appealing to visitors.

In contrast, in Japan, different institutions are responsible for tasks related to the operation of laboratories, the storage and transportation of high-level radioactive waste, and the implementation of geological disposal. We believe that there is a lack of in-depth coordination among these institutions, especially with regard to activities promoting understanding. As a result, not enough is being done to raise public awareness and interest. This matter should be addressed as a "Team Japan" effort to solve the issue of geological disposal. We can gain people's understanding if we all move in the same direction, so let's all join hands for the future of Japan!



Part 1

Interaction and Exchange Group Presentation

Expanding the circle of community exchange

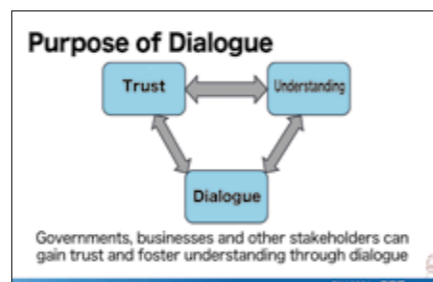


- High School Student Presenters -
- Shun Yasuda, Tokyo High School Institute of Science
- Yuki Shiraiishi, Iwaki Sakuragaoka High School
- Ikue Takano, Soma High School
- Nanami Miyazato, Iwaki Sakuragaoka High School
- Miyu Motoyama, Suttsu High School
- Facilitator: Taiga Okuyama, Fukushima University

The selection of a repository is an urgent task, and it is essential to gain the trust and understanding of local residents. When we visited nuclear facilities in Sweden during this training program, many people explained the importance of this trust and understanding.

We were told that "dialogue", "trust" and "understanding" are key. Dialogue leads to trust, which leads to understanding, which leads to a cycle of dialogue. We believe that dialogue with an awareness of this relationship is important in promoting the issue of geological disposal.

There was a difference in atmosphere between Sweden and Japan. In Sweden, explanations were given from the participants' point of view and we were able to chat with those involved. There were many smiling faces and the atmosphere was one of easy interaction.



Sweden	Japan
Explanations from the perspective of the participants → Psychologically close and able to talk casually A lot of smiles → Easy to talk to	Technical explanations → Creates nervousness Difficult to understand Not many smiles → No feeling of closeness

In Japan, however, the explanations were difficult to follow and the staff did not smile much, which made us nervous during the exchanges. We believe it is important to create environments where people can easily interact with each other to improve the situation.

In Sweden, we had an exchange lunch in a small group and it was very easy to chat. But in Japan, we had a large group lunch, and the atmosphere was tense and it was difficult to talk. In Sweden, there was also a culture of taking a break and socializing, called "Fika". We think the atmosphere could be improved if such a system were introduced in Japan, and people could relax while having lunch.

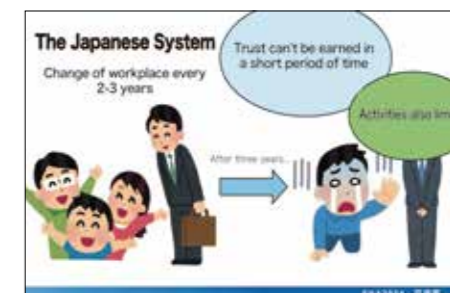
We'd like to tell you about Hannah, SKB's Public Relations Manager. Hannah is originally from Finland, but has lived in Forsmark, Sweden's final disposal area, for many years. At first, she had a hard time getting along with the locals, but she is now a communicator and has established friendly relations with the community.

Hannah spoke about the importance of "getting out into the city yourself, visiting many residents, and interacting with them", using the term "good shoes" to illustrate what was needed. She walks around the community to engage in dialogue. We felt that by patiently speaking with the residents, she was able to steadily gain their understanding.



Japanese companies actively participate in community activities such as volunteer clean-ups and festivals. JNFL appoints employees who were born and raised in Rokkasho Village, Aomori Prefecture, and who are deeply rooted in the community, as "Gennen Community Ambassadors" ("Gennen" is JNFL in Japanese). The ambassadors serve as a bridge between JNFL and the local community. We believe that more widespread promotion of initiatives such as the Gennen Community Ambassadors will help gain the trust of local communities in Japan.

We have heard that employees of nuclear-related organizations in Japan change their job locations every two or three years. If that is the case, once



an employee has established a close working relationship with the local people the process would have to start all over again when a new person arrives. We felt it was important to live in the same community for as long as possible, discuss things together, and build a relationship of mutual trust. Just by meeting with people in the community more often, it would be easier for the locals to talk about their true feelings.

As long as high-level radioactive waste exists, the construction of a repository is inevitable. It is essential to gain the trust and understanding of the local population in order to proceed with site selection and disposal. Dialogue is important for achieving both of these. However, we believe that dialogue and interaction are not taking place at a sufficient level in Japan today.

In Suttsu Town, a candidate for the disposal site, some people do not even know that there is a place for dialogue and exchange, and residents do not have the opportunity to interact closely with employees of nuclear-related organizations. We recently visited the Nuclear Waste Management Organization of Japan (NUMO) in Suttsu Town, and while it was a great facility for learning about geological disposal, it was not a place where people could casually drop in and interact with each other.

For this reason, we suggest "creating an atmosphere of exchange" by using "Fika" and other means to expand the circle of interaction, and strengthening "community-based interaction with residents" by creating a system in which staff live in the same area for an extended period of time and talk with residents.

## Part 2: Panel Discussion

# Education on radiation and nuclear energy



● **Coordinator:**  
Masaharu Tsubokura,  
Chief Professor, Department of Radiation Health Management,  
Fukushima Medical University

### ● High School Student Panelists

- Miyu Motoyama, Suttu High School (First Year)
- Riho Moue, Iwaki Sakuragaoka High School (Second Year)
- Shun Yasuda, Tokyo High School Institute of Science (Second Year)
- Yuma Nakano, Tsuruga High School (Second Year)

knowledge, he/she would not be able to understand what was being said. Given the current education situation in Japan, I could not keep up with what the experts were saying. I felt the content was too difficult to teach elementary and junior high school students. In addition, I thought that teachers need a good knowledge of radiation, and ideally the ability to teach from a neutral standpoint. In Suttu Town, Hokkaido, where the literature survey for the construction of the waste repository is being conducted, there is a division between those who are for the project and those who are against. In such a situation, it may be difficult to teach from a neutral standpoint when explaining to children who do not have their own opinions.



Miyu Motoyama

### Education on radiation and nuclear energy

**Tsubokura:** First, I would like to talk about education on radiation and nuclear energy. In Part 1, you pointed out that education is not progressing well in Japan. Please tell us why this is and what you have discovered through this program.

**Motoyama:** I think there are problems both on the teaching side and the learning side. Through this training program, I came to think that if the person receiving the education did not have basic

**Moue:** The person from SKB in Sweden explained things with jokes and spoke from the perspective of high school students, which gave me a feeling of familiarity with the company. However, I thought that in Japan, the use of technical terms and the desire to make people aware of geological disposal were overemphasized, making the subject inaccessible to those who lacked interest or awareness, and diminishing the educational effect.



Riho Moue

**Yasuda:** I think it is a hard topic to teach because of its difficult content and high barrier to understanding. I think another factor is that there are almost no easy-to-understand teaching materials. In my junior high school science textbook, there wasn't much information on nuclear energy and only a few descriptions of its advantages and disadvantages. I think the lack of progress in education is partly due to the lack of explanations in textbooks.



Shun Yasuda

**Nakano:** There is an assumption that the TEPCO Fukushima Daiichi Nuclear Power Station Accident creates a strong negative image. I live in Fukui Prefecture, which houses a nuclear power station, and I also had a strong negative image before participating in the training program. I think this is because I did not have much information about it, so had a one-sided opinion. But through this training program, I learned that safety measures are being taken. It is important to educate people from an early age. I enjoyed learning about nuclear energy at the Atomic Energy Science Museum "At Home" in Tsuruga City. I think it is necessary to provide education that is fun and memorable.



Yuma Nakano

**Tsubokura:** Motoyama-san, you live in the town of Suttu, and were concerned that by listening to the

pro-disposal people, you would be drawn into the pro-disposal camp. Did you have to be careful to remain neutral?

**Motoyama:** In the training program, there were many opinions from students who wanted to proceed with final disposal. I thought that if I listened only to those in favor my opinion might become biased, so I was careful not to let this happen by reading documents written by those who were opposed to final disposal in Suttu.

**Tsubokura:** I thought Motoyama-san's attitude was amazing. You thought about taking on board both sides before forming your own opinion. That is something I could not have done at all when I was in high school. Next, I would like to ask Moue-san: what made you think that, rather than creating an educational program to teach people, it would be better to have something that they could experience?

**Moue:** When I visited Japanese facilities, there were many one-way explanations. I think it is difficult to digest information when it is explained in a matter-of-fact way. We were able to follow along because we were interested in the subject, but for those people who don't have a particular interest, I felt it was important for educators to teach from the learner's perspective.

**Tsubokura:** I think this is an opinion that gets to the heart of the matter. Those of us who teach are afraid of being poked and prodded by those who are interested and curious. It makes me realize once again that I have fallen into a cycle of being defensive, going into excessive detail, and not really understanding what I am saying, even though my actual words are true. This must seem like a one-sided, difficult mess to high school students. They may be turned off even though the seriousness of the message is apparent, and the feeling is being conveyed. Yasuda-san pointed out that the content of the lessons is lacking, but is there anything you wish you had learned in your radiation education?

**Yasuda:** I wanted to know more about the dangers of radiation and have it explained to me in detail. For example, some people have a bad image of radiation, so I wanted more education about it.





**Tsubokura:** That really is true. It is difficult to explain the health effects. Even 13 years after the nuclear accident, Fukushima Prefecture itself has not decided how to conduct radiation education. Nakano-san - as a resident of Fukui Prefecture, where a nuclear power plant is located, what were the features of the radiation education you received?

**Nakano:** At present, radiation education is not uniform throughout the country, but is handled in different ways by different regions, schools, and teachers. I think it would be better to unify the basic content throughout the country and also promote education tailored to the characteristics of each region. In my case, I learned about the mechanism of nuclear power stations as part of my energy education. I think it is also good to learn about the characteristics of each region.

## Final Disposal

**Tsubokura:** Next, I would like to talk about final disposal. Compared to other countries, Japan is lagging behind in this process. Why is that? What is your opinion on this?

**Motoyama:** The reason for the lack of progress in selecting a disposal site is that residents do not understand exactly what is going on. This is illustrated by the example of Suttu Town, which is a candidate site. In the town, residents have many concerns and questions. For example, whether geological disposal is appropriate in an earthquake-prone country, or whether it will cause problems like a nuclear accident. I believe that the residents have not learned enough about disposal, but the operator has not explained it in an easy-to-understand way. The residents do not understand

what is going on, and the whole thing is not ready to come together.

**Moue:** In terms of the lack of understanding among residents, I think this is due to the fact that there is a lot of resistance in Japan because of the nuclear accident. The mere mention of nuclear power plants or nuclear waste disposal makes people feel uncomfortable or afraid. I don't think this is a good way to promote understanding. In Sweden, people discuss these subjects as readily-familiar issues, but in Japan they are explained in a difficult way. I felt that in order to promote understanding and discussion, it was necessary to get closer to people rather than explain things in difficult terms.



**Yasuda:** I don't think that making an appeal based on the benefits, risk reduction efforts, and future potential is enough. Emphasizing only safety measures is insufficient, and I think that is why it is difficult to gain people's understanding. I think it would be better to explain how much the dangers are reduced by opting for geological disposal, and how it will affect our lives and our future.

**Nakano:** The Japanese characteristic of being easily influenced by one's surroundings may be a contributing factor. In addition, the harmful rumors that have accompanied the nuclear power station accident may also cause anxiety. I don't think that people will accept the plan if there are no benefits, so why not emphasize that part of the message?



**Tsubokura:** We've heard some unique opinions there. Now, I'd like to go further into the topic. It is very difficult to provide information from a neutral point of view, and Moue-san is trying to strike a balance between neutrality and judgment. What kind of things should we keep in mind in this regard?

**Motoyama:** There are people in Suttu Town who are obsessed with the pros and cons. They think they have to come to a conclusion first. However, there are many things people need to learn before they can agree or disagree. It is good to understand the pros and cons before deciding your stance, but there are people who make decisions based on hearsay. Someone who can do proper research on their own and discuss the pros and cons would be able to form a neutral opinion.

**Tsubokura:** This is a really refreshing opinion. Now, the discussion about the disposal site is an important issue for future generations, but Fukushima, where the nuclear power station accident occurred, is probably the most difficult place in Japan to accept this. I would like to ask Moue-san, who learned about the final disposal site in Fukushima, what kind of information do you want to know?

**Moue:** I think the most important thing to know is safety. If you explain the aspects of safety and the impact on the residents, rather than go into all the fine details, I think people will take things on board honestly.

**Tsubokura:** For those who live in Hamadori, which is a coastal region of Fukushima, people would like to hear about safety. Yasuda-san - what do you think as a resident of Tokyo?

**Yasuda:** Listening to Moue-san, I realized that what Fukushima residents want is safety. But as a resident of Tokyo, I felt that I would rather hear about the benefits than safety. I suppose this is a difference in awareness depending on the region.

**Tsubokura:** I don't have an answer to your question, but I think we need to make each other aware of what Yasuda-san is talking about. Nakano-san - in

your group presentation you mentioned inviting outside lecturers for radiation education, but what kind of discussion did you have and what was the consensus?

**Nakano:** There was discussion about increasing the amount of information in the textbooks, but we realized that this would also increase the burden on the teachers. There was also the question of whether leaving things to the faculty would produce a neutral outcome, so we discussed having outside instructors give lessons on the pros and cons from a neutral perspective.

## What we learned from this training program

**Tsubokura:** Finally, please tell us what you learned from this training program.

**Motoyama:** Thanks to this training program, I am more knowledgeable than before. I realized that I did not know anything previously. I want to share what I have learned with my friends and other residents.



**Moue:** Overall, there were many things I did not know. I felt it was important as a member of society to think about the issues as if they were my own, to research and ask questions, and to try to approach things step by step.

**Yasuda:** I was able to learn about the viewpoints of people whose opinions differed from mine. There were situations that made me realize that such ways of thinking exist, and it was a great experience. By actually seeing the facilities, I was able to get a clearer and more concrete picture of what I had imagined only vaguely, which was a very good experience for me.

**Nakano:** As I gained knowledge, I realized that the nuclear energy problem facing Japan is no small matter. I hope that people around me will learn about this topic and expand their knowledge so that we can work to solve the problems.

**Tsubokura:** Everyone in the audience, I'd like you to share your ideas with the high school students. Please give these four students a round of applause.



## Audience Discussion

A question and answer session was held in which the 13 high school students who participated in the training program answered questions and engaged in lively discussions with the adults and other high school students in attendance. Yumiko Nishimoto, Managing Director of NPO Happy Road Net, moderated the session.

**Nishimoto:** We have more high school and university students in the audience than ever before. Please raise your hand if you have any questions or comments.



**Kasuoki Hosoya, Iwaki Sakuragaoka High School:**

I learned a lot about the training program and felt that things were explained to me in an easy-to-understand way. You mentioned that you would like to share your findings with others. How exactly do you plan to do this?



**Nishimoto:** That's a great question, right from the beginning. Who would like to answer this?

**Yuma Nakano, Tsuruga High School:**

After the summer vacation ended, my classmates asked me how I liked Sweden. They thought I was there for sightseeing, but I told them about what I had studied and the differences between Sweden and Japan.



**Nishimoto:** That's certainly one way to communicate, but are you satisfied with just family and friends? Shall we hear more about different ways to communicate?

**Kasuoki Hosoya:**

Yes, I would like to hear a little more, such as how to communicate with those who don't have an interest in the topic.

**Akari Nakamura, Tsuruga High School:**

Japanese explanations tend to be rigid and use technical terms. As those here today can see, I think the words of people of the same age can better hit home with the audience. I think that what high school, university, and even junior high school



students say carries a lot of weight. So, if possible, I hope we can get support from NUMO and METI to go to different places and tell people about the final disposal issue ourselves. It may be a big undertaking, but I believe that even people who are not interested will pay attention to what high school students have to say.

**Nishimoto:** That's a good answer. So, the high school students want to go to different places and spread their message via outside classes. But that would cost a lot of money to implement. What do you think about this proposal?

**Akira Yamaguchi, President of NUMO:**

I think that high school students communicating the issues is a great way to lower the initial barrier. Today's group presentations were in the order of Overview Group, Interest and Awareness Group, Education Group, and Interaction and Exchange Group. At first, I wondered why you chose this group composition. But after listening to the presentations, I understood clearly that the process should begin by lowering barriers, with the interaction and exchange coming toward the end, and that these were connected. I also felt from the panel discussion that everyone had spent quite a bit of time discussing the issues from the end of the training program up to the presentation. Going back to your earlier suggestion, how about NUMO joining the high school students in teaching the outside classes and making it an intergenerational exchange? Your suggestions were very helpful, and I could clearly see that you have studied the subject and accumulated knowledge. I will consult with Mr. Hiroki Yokote, the Director of the Office for Nuclear Reactor Decommissioning at METI (Agency for Natural Resources and Energy), and give it positive consideration. (Applause and laughter from the audience.)



**Nishimoto:** I think it would have a wonderful effect if the younger generation were to go on a nationwide tour. I think this would be better than having someone from the city office go, but what do you think, Director Yokote?

**Hiroki Yokote, METI**

**Director, Radioactive Waste Management Policy Division  
Director, Office for Nuclear Reactor Decommissioning:** Hello again, everyone. I'm Hiroki Yokote from METI. I say, let's do it! (Applause from the audience.)

**Nishimoto:** Applause! And applause from the high school students in the audience! Let's all work together on this.

**Hiroki Yokote:**

I would be happy to discuss this, whether it is the national budget or the NUMO budget. We ourselves would be grateful to have the younger generation learn about the issue of nuclear waste disposal. On the other hand, I wonder if it would be difficult for them to take the lead in conducting the outside classes. I think we have to take care here, but it is certainly very important to communicate what everyone has learned and discussed. I'd like to think about how best to do this, and make some suggestions.



**Nishimoto:** Thank you very much. I will first set up a group at Happy Road Net for conducting outside classes, so let's all do our best to make this work. Now, let's move on to the next question.

**Ryoga Sato, Rokkasho High School:**

Are there any areas in which Japan is inferior or superior to Sweden?



**Riho Moue, Iwaki Sakuragaoka High School:**

One of the differences between Japan and Sweden is the atmosphere. The atmosphere there was one of getting to know each other in a relaxed way. It was not as formal as in Japan. I think it is important for Japan to have more communication and a friendly atmosphere.



**Toshiki Okawa, Iwaki High School:**

There was a friendly atmosphere in Sweden. I think that when holding outside classes, we should incorporate "Fika" from Swedish culture to create an atmosphere that is conducive to interaction and exchange.



**Kino Nishigata, Tokyo High School Institute of Science:**

I believe that one of Japan's strong points is compulsory education. I think that by acquiring a certain level of knowledge about nuclear energy through compulsory education, social problems could be solved.



**Sota Ito, Soma High School:**

I went to Sweden last year to participate in the



Fukushima High School Academy 2023. I think there's something in the proposal to unify people's knowledge through compulsory education. In today's presentations, students talked of acquiring correct knowledge about nuclear energy, but I think this may be difficult to define. What do you mean by "correct knowledge"?

**Nishimoto:** You are growing up well. You have begun to think about such things. So, let's hear the answer.

**Kotaro Abe, Haramachi High School:**

Taking nuclear power as an example, before I participated in the training program, I had only a negative image of nuclear power stations being dangerous because of the nuclear accident. Through the program, I saw that experiments are being conducted on flatfish using treated water from TEPCO's Fukushima Daiichi Nuclear Power Station, with the safety of the water being publicized. When the data is shown, we can know it is safe. I believe that being able to confirm things with one's own eyes will give the correct knowledge.



**Sota Ito:**

Does anyone else have any other ideas?

**Shun Yasuda, Tokyo High School Institute of Science:**

My idea of correct knowledge is neutral information. I believe that there should be no bias whether the teacher is for or against the subject. I believe that only the facts should be taught, without emphasizing or hiding parts of the information.



**Nishimoto:** I'd like to hear from the adults in the audience. The students here are having a very passionate debate, and I don't think you could have this kind of interaction were it only adults. What do those of you in the media think?

**Toshiya Nakagawa, Chairman of the Fukushima Minyu Newspaper:**

Thank you to all the students. I've attended these presentation events each time, and this was a very fruitful one with concrete suggestions. There were many interesting ideas such as how education should be, Gumo Parks, and escape games at research facilities. I would like to see METI and NUMO implement these ideas. In terms of knowledge, which you discussed earlier, I would like you to transform this knowledge into wisdom.



Knowledge can be acquired through study, but I think it is important to transform knowledge into wisdom and learn how to use it. There are very difficult issues in the world, like war and peace and nuclear power. The most frightening thing is indifference. I think it is an important step to tell even one person close to you. We have people who read newspapers and listen to the news on the internet, so I hope that first of all people will not be indifferent, but will face up to the issues.

**Nishimoto:** Now let's talk about the passionate wish from the students to give outside classes. What kind of cooperation could we get from the schools? What do you think?

**Shigeru Nakano, Haramachi High School Principal:**

I was quite relieved to hear in your presentation that this would be taught thoroughly in compulsory education and not in high school (laughter from the audience). At our school, we have many opportunities to present research projects. I would like to make preparations so that you can share your ideas via presentations. I also have a question. You spoke of the need for a relaxed, even joking, environment at information sessions. What are some ways to create an atmosphere of relaxed conversation?



**Miyu Sato, Haramachi High School:**

In Sweden, "Fika" created a friendly atmosphere. How about including an icebreaker or something similar?



**Yuma Nakano, Tsuruga High School:**

It would be easier to tell jokes if one were a teacher who is usually funny.

**Nishimoto:** What kind of content would you like to see in outside classes by high school students?

**Nobuhide Akimoto, TEPCO Managing Executive Officer and Fukushima Revitalization Headquarters Representative:**

I'd like you to listen to me as an individual, not as someone representing a company. The first important thing is facts. I don't think anybody can deny that. The question is how people feel about facts: I think this; you think that. It very much depends on the person. And that is why we are able to have different conversations. You have learned different things and ideas have been born within you. I don't think any two people are exactly the same. There are about a



hundred people in this room, so there are a hundred different ways to interpret things. The important thing is to express information honestly first, and eventually build some kind of consensus. Your opinions may or may not be accepted, and there may be dissatisfaction, so if the actual goal is to reach a consensus, there will be no dialogue. We have to accept other parties' opinions without trying to force a consensus, otherwise no such consensus will be reached. I think that adopting this mindset would be a good first step in the process.

**Nishimoto:** Turning to the Public-Private Fukushima Reconstruction Joint Team, which is deepening its collaboration with university students, what do you think of high school students delivering outside classes?

**Hideshi Todaka, Senior Executive Director, Organization for Fukushima Soso-region Revitalization ("Kan-Min" Public-Private Fukushima Soso-region Reconstruction Joint Team):**

During the discussion, there were times when I chose my words and really thought about what I wanted to say. I think that was during difficult parts of the discussion, such as whether people agree or disagree, but I think these parts are important. Dialogue is necessary to deepen the discussion. Therefore, I would like you to take on board opinions that differ from your own. I know that you will all become members of society in the future, and we want to help you as you grow.



**Nishimoto:** That's all we have time for, so I'll close the session there. Thank you very much.



# 1 Compromise



Miyu Motoyama,  
Suttsu High School, Hokkaido



## ◇ Japan's inability to solve nuclear power issues

The thing that made the biggest impression on me during this training program was the difference between the Japanese and Swedish approaches to the "high-level radioactive waste disposal issue". Having learned about Sweden's progress, I felt that Japan must also resolve this matter now. However, in my opinion, Japan has not made much progress in solving such nuclear power issues with its current policies.

When we visited Sweden, we found that SKB is proactive in visiting schools and holding many opportunities for dialogue. In particular, Hannah of SKB works as a communicator, acting as a bridge between residents and the nuclear power authorities, and she pursues problem-solving in the spirit of "walking and walking; talking and talking". The SKB employees all

said: "Dialogue with residents is the most important part of our work". I learned from them the importance of "dialogue" in resolving nuclear issues. However, in my hometown of Suttsu, Hokkaido, which is a candidate for a high-level radioactive waste disposal site, dialogue is not progressing well because of the current conflict between the pro- and anti-nuclear factions. In addition, there is a big gap between NUMO and the townspeople, and I don't think that smooth communication is taking place. Suttsu houses NUMO's Suttsu Exchange Center, the second floor



of which is open to the public as a social exchange room with a gallery. I visited there myself, but found it difficult to utilize because I felt that people were looking at me when I entered.

## ◇ Compromise among residents and the organizations involved

Through participating in the training program and comparing my hometown of Suttsu with Sweden, which is a country that is well advanced in this area, I saw that it is important for residents and related nuclear power organizations to "compromise on both sides".

In fact, SKB's policies are very accommodating to local residents, and the residents have a positive attitude toward this nuclear issue, such as visiting the Äspö Hard Rock Laboratory with their families and friends when on vacation. In comparison, I have the impression that Japanese people have little interest in this issue, which should be of great interest to them, or that they are in denial about high-level radioactive waste, or have a judgmental attitude toward it. I also don't think that NUMO is making enough progress in reaching local residents. Certainly, it is difficult for this matter to take root in the community, and it will take time and more "dialogue".



However, since I was born and raised in Suttsu Town, I believe that I can use the experience I have gained concerning this nuclear issue to talk to people from the nuclear power organizations from a neutral standpoint, without being caught in the middle of the pros and cons.

## ◇ Forming one's own opinion and being able to act on it

For me, the idea of having a communicator who creates an environment for "dialogue" was very attractive. Therefore, I would like to become a communicator like Hannah, whom I met in Sweden, who connects residents and nuclear power organizations to promote "dialogue" wherever possible, and to assert my opinion as a high school student toward the eventual selection of a high-level radioactive waste disposal site. I would like to use the experience I have gained from this training program to become a "person who is able to act", who can treat future regional and social problems as their own, and who can contribute to solving these problems while holding their own opinion. And I hope that this circle of issues will spread all over the world.



## 2 Breeding familiarity with geological disposal



Riho Moue, Iwaki Sakuragaoka High School, Fukushima



### ◇ Differences between Japan and Sweden

In terms of the differences I discovered between Japan and Sweden through the "Fukushima High School Academy 2024" program, I felt that it was especially important to see the geological disposal of high-level radioactive waste as "an issue that is close to home". When I visited JNFL's PR Center and TEPCO's Fukushima Daiichi Nuclear Power Station, the explanations were full of technical terms, and I felt that I was just listening to a one-way talk from the explainers.

The Horonobe Underground Research Center in Hokkaido conducts tours of the underground geological disposal tunnels, but they are only held twice a month from April to October, once in the morning and once in the afternoon on a single day, with only 18 people attending each tour. We also felt that the environment was not conducive for the general public to fully observe the tunnels, as third graders and younger were not allowed to enter. I later heard that the

staff tried very hard to give us thirteen high school students a chance to visit Horonobe, but in the end it was a no-go. Instead, four of our staff, including a university student facilitator, visited in advance. We believe that this situation of people not being able to visit the facility in order to understand geological disposal even if they want to prevents them from becoming familiar with the issues.

The Äspö Hard Rock Laboratory, which conducts research on geological disposal in the municipality of Oskarshamn, Sweden, is operated by the Swedish Nuclear Fuel and Waste Management Company (SKB). In contrast, they invite local residents to visit the underground tunnels in order to help them understand the situation. Even for residents who are not specifically invited, the company advertises the tours in newspapers and other media, and local high school students have participated with their parents. The tour of the underground tunnels allows visitors to get a closer look at the full-scale canisters (containing spent fuel), the shafts in which they are installed, and the vehicles that transport them. Visitors can also taste

the underground water 450 meters below the surface and take it home in plastic containers, making the experience even more immediate.

### ◇ Public relations and exchange activities in Sweden

The Äspö Hard Rock Laboratory organizes an annual winter running competition for citizens in the underground tunnels and a public exhibition of the carriers that transport spent fuel. All of this is handled by SKB. During our training program in Sweden, I had several conversations with SKB employees, and I was able to talk not only about the technical aspects of geological disposal, but also about the culture of both countries, personal hobbies, and other small talk. I believe it is due to SKB's efforts that the students we met from Oskarshamn and Vattenfall High School had become familiar with geological disposal and were able to see it as an issue that needs to be addressed now.

SKB has employees that actively communicate with local people, and through them I understood the importance of the human element. We met with Hannah, who is one of these employees. She has lived in the area of the planned repository for more than 20 years, and when she speaks as an SKB employee, she does so from the perspective of the local residents, which I think is one way the company is able to build relationships with people beyond the business aspect.

I'd like to mention an exchange we had with nuclear engineering students at Uppsala University. After discussing the disposal of high-level radioactive waste and geological disposal, we gave the students some Japanese souvenirs at the end of lunch. In return, one of our friends received a key chain with a model of a "pellet", which is used in nuclear fuel. The fact that the student was a nuclear engineering major probably explains why he had that key chain, but it would have been unthinkable in Japan. In terms of familiarity, I thought that having a model to hand was very important.

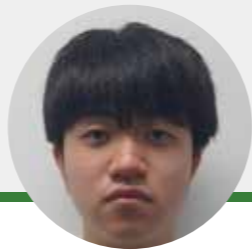
### ◇ Japan in the future

In order to deepen public understanding of geological disposal in Japan, the issue of high-level radioactive waste disposal must first be familiar to residents living near nuclear power stations. In addition, other areas of the country need to have an interest in the issue so that they feel familiar with it.

To this end, we believe that it is important for people to be able to casually visit final disposal-related facilities and actually ride in the associated transport vehicles and boats, as is the case in Sweden, as well as enable the relevant organizations and local residents to communicate freely. In order to increase the number of people who are familiar with and interested in the issue of geological disposal, METI and MEXT (the Ministry of Education, Culture, Sports, Science and Technology) should take the lead, and related organizations such as NUMO and JAEA (the Japan Atomic Energy Agency) should work together to address this in a "Team Japan" effort.



### 3 Facing up to the issue of final disposal



Shun Yasuda, Tokyo High School  
Institute of Science



#### ◇ Three points that made an impression on me

I learned about the current status of high-level radioactive waste disposal in Japan and what is important in order to proceed with the selection of a final disposal site. I'd like to talk about three points that made an impression on me.

The first is the current status of high-level radioactive waste disposal in Japan, where the government aims to achieve a nuclear fuel cycle that reprocesses the waste. A reprocessing plant is currently under construction in Rokkasho Village, Aomori Prefecture to reprocess spent fuel into uranium fuel and MOX fuel. I learned that such reprocessing can reduce the amount of nuclear waste by about a quarter, and that this technology is very useful in Japan, where resources are scarce, because the uranium fuel and MOX fuel can be reused.

The second is the lack of progress in selecting a repository in Japan. We discussed this issue as we were putting together our presentations. One possible factor was the aversion and resistance of the Japanese people to nuclear power as a whole. Events such as the atomic bombing of Japan and TEPCO's Fukushima Daiichi Nuclear Power Station Accident have created negative feelings toward nuclear power.

I also noticed significant individual differences in awareness and knowledge.

While I, as a resident of Tokyo, did not have a negative attitude toward nuclear power and final disposal, high school students in Fukushima, an area which has suffered a disaster, were skeptical about it. I felt that this was one of the factors hindering the selection of a disposal site.

The third is the initiatives being undertaken in Sweden. A high-level radioactive waste repository is under construction there, and we learned that the selection of the site was rooted in an emphasis on dialogue with local residents over a long period of time. We also learned that providing information in a transparent way is important to gain the trust of those residents.

#### ◇ Strategies to attract the interest of young people

Through the training, we learned the importance of realizing the nuclear fuel cycle and the need for a repository. The use of nuclear energy requires not only technological development, but also public understanding, so when selecting a repository, it is important to engage in dialogue with local residents to gain their trust and understanding.

To date, NUMO and various other organizations have made efforts to gain public understanding by holding explanatory and discussion meetings throughout Japan. However, not many people actually attend the meetings, and some are not even aware of the issue of selecting a permanent disposal site. In addition, some people say that many of the topics discussed at the meetings are highly technical and difficult to understand.

For this reason, the current approach is unlikely to reach those who do not have a particular interest in the topic. Therefore, in order to better move ahead with the selection of a disposal site in Japan, we need a strategy that will interest us young people.



#### ◇ Expanding awareness of the issues

As for what we ourselves can do, I would like to start by telling those around me - my family and school friends. People who are close to us are more likely to listen to what we have to say, and more likely to trust us. Furthermore, I feel that our words will have more impact because we have visited the Fukushima Daiichi Nuclear Power Station, JNFL's facilities, and related facilities in Sweden.

By starting with oneself and passing on the message among those close to each other, it should be possible to broaden the awareness of high-level radioactive waste disposal over a wide area. Then, by expanding the scope from individuals to school classes and schools as a whole, we can steadily create opportunities for more people to deepen their understanding and think about the final disposal site. I too would like to face this issue by sharing what I have seen and heard.



# Lessons to be learned from Sweden: 1

Japan cannot put off the issue of the final disposal of high-level radioactive waste (nuclear waste)



● Site visit to Äspö Hard Rock Laboratory

## Considering final disposal as a country with nuclear power stations

For countries with nuclear power stations, the disposal of high-level radioactive waste (nuclear waste) is an important issue that cannot be avoided. In Japan, nuclear waste continues to accumulate, but the reality is that a vital site for disposal has not even been identified yet.

Sweden is far further ahead than Japan on this front. The country has already selected a site for the construction of a "geological disposal" repository. The site is located in Forsmark, a rural area in the municipality of Östhammar, about 120 km north of the capital, Stockholm. The disposal project will be carried out by the Swedish Nuclear Fuel and Waste Management Company (SKB), a joint venture established in 1984 by four electricity companies.

We were taken on a tour by an SKB spokesperson, which included a walk through a flat area of grass and trees. The site is in close proximity to the Forsmark nuclear power plant, which is currently in operation. In Sweden, spent fuel is placed in a copper canister, covered with clay (bentonite) to prevent leakage of radioactive materials, and placed in bedrock about 500 meters underground.

Incidentally, Japan will also use geological disposal, but in a different way. The plan is to reprocess spent fuel to extract

uranium and plutonium, and then mix the remaining liquid waste with glass and place it in a stainless steel container for disposal at a depth of 300 meters or more underground.

Forsmark was selected as Sweden's final disposal site in 2009. The government approved the implementation of SKB's project plan in 2022. Construction is set to start in 2027, with operations expected to begin in the 2030s. The technology for the first disposal operations has been studied at SKB's "Äspö Hard Rock Laboratory" in the municipality of Oskarshamn, about 350 km southwest of the capital, and other facilities.

No candidate repository site has yet been selected in Japan, and even the outlook for such a site is uncertain. A "literature survey", the first step in selecting a repository, has been underway in the towns of Suttsu and Kamoenai in Hokkaido since 2020, and Genkai in Saga Prefecture since 2024. There are three phases of research that will take a total of about 20 years to determine a site's suitability for a repository.

There are 16,000 tons of spent fuel stored in Japan, which accounts for more than 75% of the storage management capacity of about 21,000 tons (as of September 2023, Japan Atomic Energy Relations Organization: JAERO). The issue of final disposal has reached the stage where it cannot be postponed, but unfortunately it has not yet become a point for discussion by the entire country.

# Lessons to be learned from Sweden: 2

It is important to sustain dialogue with residents, ensure transparency by disclosing information, and educate young people



● Visit to the planned construction site for the final disposal facility in Forsmark

## We must face up to the responsibility for final disposal and avoid postponing the burden to future generations

In Japan, the selection of a final disposal site for high-level radioactive waste (nuclear waste) has caused regional divisions among supporters and opponents over the "literature survey". Has there been any such division among local residents in Sweden? According to a survey of local residents over the age of 18 conducted by SKB, a surprising 86% are now in favor of final disposal. This is a different situation from Japan, and it is thanks to the understanding and trust that SKB has worked to gain from the residents.

"It is important to sustain dialogue with residents, to ensure transparency through information disclosure, and to educate young people," said SKB's public relations manager. She told us that there was a long road to gaining trust, saying "We visited small communities and explained the issues in simple terms. We even went to the homes of residents who were unconvinced and talked to them".

Behind the emphasis on dialogue lies a past failure: when SKB first began working on the selection of a disposal site, the company started a survey without explaining the situation to local residents and had to withdraw from the project after encountering fierce opposition. The

spokesperson stressed, "It is important to be patient and listen to what they have to say".

The results of SKB's long-standing consensus-building efforts now permeate today's youth. A number of local students expressed positive opinions about nuclear power in terms of "trust in nuclear power", "economics" and "environmental issues". They said that they were influenced by the fact that they were educated from an early age regarding final disposal.

Some also commented that there is an established belief that "it is natural to accept final disposal as part of our responsibility for using energy". This is fundamentally different from the perception in Japan. The SKB spokesperson said, "Young people will also be responsible for final disposal in the future. That's why we have to inform them".

According to a nationwide attitude survey (valid sample of 10,000 respondents aged 18-69) conducted in 2023 by NUMO, the Japanese entity responsible for implementing final disposal, 7.3% of respondents said they were "Interested" in the geological disposal of nuclear waste and 27.6% were "Somewhat interested". This should be taken as a low level of interest in final disposal in Japan.

In order to avoid postponing the burden to future generations, all citizens who use electricity must face up to the responsibility of final disposal. We would like the government to make efforts in education and public relations in order to promote discussion.

# On the Spot: Seeing with one's own eyes

## Learning from Sweden, a country advanced in its progress

In the summer of 2024, thirteen first- and second-year high school students from Fukushima, Hokkaido, visited facilities related to high-level radioactive waste (nuclear waste) in Sweden in Northern Europe, the students strengthened their desire to view the final disposal of nuclear

## Learning from Sweden, a country advanced in its progress

### ① Environment

"It's like the animation Kiki's Delivery Service," one participant said while flying over Arlanda Airport in Sweden, about 15 hours after taking off from Haneda Airport. The scenery was lined with beautiful buildings along the sea. During our stay in Sweden, the maximum temperature during the day was about 25 degrees Celsius, with the minimum temperature about 15 degrees. It was comfortable in the shade, but the sun was intense. Local residents were wearing short sleeves, shorts, and sunglasses. The time difference from Japan is 7 hours in summer time. Sunset is at 9 pm. Amid the favorable climate, our body clocks were shifting as if by magic.



▲ Stockholm Palace

### ② Food - mystery melons lined up for breakfast, and Fika with Semla

Meals often center on chewy bread, some of which is as hard as crackers. Sliced vegetables, cheese, ham, and jam decorate the bread. Crispy bacon and a variety of potato dishes, which are apparently a staple, are also eaten. Many of the ingredients were unfamiliar. We didn't go near the fermented, salted herring, which is famous for its strong smell. What won our heart was a fruit that looked like a combination of a pear and a melon. It was described as a "melon", but it was not the kind we were familiar with. It was juicy, slightly fragrant, and sweet. It is served at breakfast in every hotel. The "melon" left us mystified but it soothed our jet-lagged bodies. Snack time, called "Fika", is a traditional break from work for people to refresh themselves with cakes and coffee. At the high school we visited, we had the opportunity to make the traditional pastry "Semla" by hand. Two kinds of sweet cream are sandwiched between spiced bread. The more the cream squeezed out, the more the cheers went up.



▲ High school students making their own Semla for Fika at Vattenfall High School



### ③ Toilets - surprise at shared use by men and women and usage fees

The toilet situation was quite different to what we were used to. We felt strange seeing constructions of just a series of separate rooms. When we saw the pictograms, we realized that they were male/female shared facilities. This was also the case in other places like hotels and schools, with the exception being the airport. Men and women were standing together in the waiting lines, and it took quite a long time. You had to pay for the toilets in the Stockholm subway, with people using credit cards at a ticket gate-like entrance. They cost 10 Swedish krona (SEK) per use, or about 140 Japanese yen. Toilets in commercial facilities and parks also had fees. From a Japanese perspective, we could not shake the feeling of discomfort.



▲ Public toilet in Oskarshamn Male/female shared use, and costs 5 SEK

### ④ Recycling - earning money with "Pant"

We saw machines lined up near the entrances of supermarkets. They were plastic bottle collectors. People bring their empty containers to the machines and exchange them for cash. The machines are used across Scandinavia. The word "Pant" is written next to the bar code on plastic containers, and they are marked from 1 to 2 SEK depending on the size of the container. When bottles and cans with "Pant" are placed in the collection machine, the deposit paid at the time of purchase is returned as a coupon for the stated amount. This system promotes recycling, and we saw many residents using the machine one after another with large bags full of containers.



◀ High school student using a collection machine at a supermarket in Stockholm

Some of the high school students were awakened to the spirit of recycling by a system that enables them to think about the environment while having fun. They actively collected containers from the adults and filled their paper bags to the brim, redeeming them for cash. Afterwards, they bought ice cream with a look of satisfaction on their faces.



▲ Supermarket in Oskarshamn Expansive premises, but they don't sell drinks of 3.5% alcohol by volume and above



◀ Changing of the guard ceremony at Stockholm Palace The band performs ABBA songs and other music in a somber atmosphere



▲ The capital Stockholm, consisting of several islands. On the last day of the program, there was time for a walk to enjoy the abundant water and beautiful scenery

## Understanding the current situation in Aomori and Fukushima and Fukui, where nuclear power-related facilities are located, and Tokyo, a major power consumption area, and Rakkasho Village in Aomori Prefecture. By learning about initiatives in Japan and abroad, waste as "their own issue" and share it with as many people as possible.

## Understanding the current situation in Aomori and Fukushima and Fukui, where nuclear power-related facilities are located, and Tokyo, a major power consumption area, and Rakkasho Village in Aomori Prefecture. By learning about initiatives in Japan and abroad, waste as "their own issue" and share it with as many people as possible.



### Site for construction of Forsmark final disposal facility



SKB will build and operate the facility in the vicinity of the Forsmark nuclear power plant, with construction expected to begin in 2027 and operation in the late 2030s. The site was undeveloped, with overgrown grass.

### Uppsala University

Uppsala is a city located about 70 km north of the capital, Stockholm. Uppsala University was founded in 1477 and is the oldest university in Scandinavia. The Japanese high school students gave a presentation in front of university students and faculty members. They also toured the university's museum of history and other facilities. The university has produced many Nobel Prize winners among its graduates and faculty members. It is the alma mater of Carl von Linné, the father of botany.



### Vattenfall High School



A boarding high school operated by Vattenfall, one of the largest electric power companies in Europe, and attended by family members of employees. The Japanese high school students gave presentations on final disposal and other topics, whilst the Swedish high school students gave presentations on their culture. Participants strengthened their bonds of friendship through games of table tennis and pool, and other exchanges.

### Äspö Hard Rock Laboratory

SKB operates the Hard Rock Laboratory, which conducts technical tests for final disposal. We took the elevator down to 340 meters below the surface, and then walked through the tunnels to the deepest level, about 460 meters below the surface. The steepest incline is 40 degrees. In addition to being used for scientific research, the site has become a familiar place for the local community, with running races being held there. Visitors can take home groundwater as a souvenir. You can drink it, and it tastes like...





# On the Spot: Seeing with one's own eyes

## Understanding the current situation in Aomori and Fukushima

### JNFL

A company established for the purpose of enabling commercial use of the nuclear fuel cycle. JNFL operates various facilities, including the Low-Level Radioactive Waste Storage Center, the High-Level Radioactive Waste Storage and Management Center, and the Spent Fuel Receiving and Storage Facility. The PR Center provides an overview of the reprocessing process.



### TEPCO's Fukushima Daiichi Nuclear Power Station

Units 1 through 3, which were in operation following the Great East Japan Earthquake, failed to cool their reactor cores after shutdown, leading to a severe nuclear accident that damaged the reactor cores.

Decommissioning work is expected to continue for the next 30 to 40 years. Contaminated water generated by the injection of water into melted-down fuel debris and other processes is purified by the Advanced Liquid Processing System (ALPS), and this "treated water" has been discharged into the ocean since August 2023. From 2024, the plant is entering a new stage of decommissioning work, the removal of fuel debris, which is the core of the operation. Experimental removal has begun at Unit 2.



### Comments in Response



**Yasuhito Nii, Director-General, Fukushima Reconstruction Promotion Group, METI**

I would like to thank all the students for their hard work during this High School Academy. I have attended every presentation event and each one has been amazing. This year was no exception. Last year we received a great deal of flak. METI's documents were compared very unfavorably with SKB's documents, to the effect that the students wanted us to change them.

Listening to the presentations, I was impressed by their composition and the very confident manner in which the students spoke, which I'm sure was the result of their

dedicated preparations. What most impressed me was that the presentations were not just about taking adults and the government to task, but that we also learned about each student's growth.

And another wonderful thing was the smiles. Frankly speaking, final disposal is a very heavy issue, and people cannot usually talk about topics such as the release of treated water and the decommissioning of nuclear reactors with a smile. However, what I realized from today's presentations is that smiling is also necessary to convey the message. Though, it may be weird for an old man like me to smile.

How can we effectively promote "dialogue", one of today's key words? The presentations made me think about how to communicate with others from the perspective of equals, rather than simply "teach and be taught".

In the past, when the Small and Medium Enterprise Agency was trying to expand the businesses of 3.6 million small and medium enterprises in Japan, it was decided that the "teacher-student model" was unsuitable. This is because when providing support to a business owner, one must also be a companion in order to bring out their feelings and have a dialogue with them. This is what you are doing: expanding the issues to people of the same generation who have thus far not taken an interest in them, and involving adults in the process too. You are creating common understanding regarding an issue that is difficult to grasp and for which there is no definitive solution.

Japan must resolve the issue of final disposal, even if it takes a long time. I believe that the final decision will be based on the accumulation of both your and our activities. Even if the road is long, we need to continue this dialogue in society. I would like to thank everyone involved for setting up this truly wonderful occasion.



**Toru Hashimoto, Fukushima Prefectural Assembly Member**

I would like to share my impressions as a local prefectural council member. First of all, during the Q&A session, the Managing Director of Happy Road Net, Ms. Yumiko Nishimoto, gave out many action points across various fields. I look forward to seeing what kind of answers we will get next year. I hope that everyone's opinions will resonate with the national government, the prefecture, TEPCO, and all other parties.

In terms of the students' presentations, I heard that you had been preparing right up until earlier today. This is a sign of your passion and desire to convey your message well, and I believe it will be a source of inspiration for your lives. I am sure that this kind of passionate effort will give you the confidence to become the ideal you in the future.

We must take your opinions right to the center of our hearts. As a member of the prefectural assembly, I have been given a crucial task: how to implement radiation education in compulsory education. I would like to work toward a solution to this.

I think that discussing the issues surrounding final disposal is a very difficult undertaking, and I would reiterate that we should be aware of the importance of our role in this process. I would like to conclude by saying thank you to everyone who worked to make this opportunity possible.



Summary



Masaharu Tsubokura, Chief Professor, Fukushima Medical University

During this High School Academy program, I accompanied the students to JNFL's Nuclear Fuel Facility in Aomori Prefecture and on the overseas program in Sweden. Initially, there was some concern that because geological disposal is a difficult subject the high school students might be pulled in favor of it.

But I underestimated these thirteen individuals. Now, their faces are completely different from the first time I saw them. We debated and quarreled night after night, and redid the

presentations many times. In the process, I saw them learning to balance the pros and cons, forming their own opinions by asking difficult questions, and understanding diverse ways of thinking.

Of course, the structure of the training program required that some aspects be studied based on the ideas of adults. However, I have given advice with the belief that it is the role of adults to trust the younger generation and support their growth so that they can form their own opinions. The adults around the high school students also carefully observed and supported them to help them speak up and deepen the discussion.

I saw many things that adults ought to learn from the opinions of high school students. In fact, it is often the case that adults fail to express their own opinions or rationales, instead becoming quarrelsome or erecting barriers around themselves. The time I spent with these thirteen high school students has been a great experience for me, and I myself grew as a person.

It is healthy for society to have a structure by which it can support young people. It is important for one to form opinions through discussion and dialogue, and avoid being ignorant of social issues by not coming into contact with them. I would like to express my appreciation to the high school students. Thank you all for your hard work.



Let's think together about final disposal

Editor's Postscript

M E S S A G E



Yumiko Nishimoto,  
Managing Director,  
NPO Happy Road Net

Thirteen years have passed since the Great East Japan Earthquake and TEPCO's Fukushima Daiichi Nuclear Power Station Accident, and we have just finally reached the main part of the decommissioning process, with the first successful trial retrieval of fuel debris in November 2024.

The theme of the "Fukushima High School Academy 2024" training program is the final disposal of high-level radioactive waste (so-called "nuclear waste") from nuclear power stations. Regardless of whether one is for or against nuclear power, every citizen must face up to this issue.

Although the policy of geological disposal has been proposed in Japan, a roadmap for the final site has yet to be determined. We cannot afford to keep postponing the answer to the "interim storage" question to future generations. It is important for anyone who uses electricity to feel a responsibility for this, and work toward its resolution.

Thirteen high school students from Hamadori; Hokkaido, where a literature survey on final disposal is being conducted; Fukui Prefecture, where nuclear facilities are located; and Tokyo, a major consumer of electricity, participated in the training program. In August, they visited nuclear-related facilities in Japan and Sweden, and directly confronted the issue of final disposal, which is still yet to be resolved in Japan.

The students learned by fully utilizing all five senses. They ran into questions, engaged in discussions with their peers until late at night, and shared their own opinions. They not only deepened their knowledge of final disposal, but also developed an awareness as members of society and an attitude of confronting social issues. At the presentation event held in September, I was greatly impressed by the outstanding way in which they put forth their own ideas.

Many students have scant opportunity to learn about issues such as final disposal, energy, and decommissioning. If this situation continues, there is a danger that they will be confronted with problems and choices at a very late stage and forced to deal with them.

Happy Road Net has continued its human resource development programs because we believe that it is the responsibility of adults to give children "awareness". This is because there are so many things that cannot be learned in school. We will continue to provide opportunities for students to build knowledge for their future, rather than "bury their heads in the sand". Let us take to heart the high school students' message and think together about final disposal in Japan.

Planning and Publishing



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High school student overseas training program in summer 2025  
for "Future of Nuclear Waste Disposal"

# NEXT FUKUSHIMA HIGH SCHOOL ACADEMY 2025

Happy Road Net, a nonprofit organization, is conducting an educational project in which high school students learn about the disposal of high-level radioactive waste (nuclear waste) from nuclear power stations through an overseas training program. During their on-site visits, the students will hear from local officials, residents, and other high school students about the process of selecting the final disposal site and how to foster understanding with local residents. Let's think about these issues together next summer!



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